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DEPARTMENT OF MARINE AND FISHERIES TORONTO

GENERAL METEOROLOGICAL REGISTER

FOR THE YEAR 1906



REMARKS ON THE METEOROLOGICAL RESULTS AT TORONTO FOR THE YEAR 1906.

TEMPERATURE.

The mean temperature of the year 1916 was 46°26, being 1°87 warmer than

the average of 66 years, and 1-73 warmer than 1905.

The mean temperature of the several months was in nine instances above and in three below the average for the respective months, the average defect to the average excess being in the ratio of 2 1 to 3 2. On each of 223 days the mean temperature was above the normal of that particular day and below on 142 days. The mean temperature of each month, with the difference from the normal, was: January, 31°0+8°5; February, 21°8-0°4; March, 26°8-2°3; April, 44°1+2°8; May, 53°2+0°7; June, 65°0+2°6; July, 60°6+1°7; August, 71°0+4°7; September, 64°2+5°4; October, 48°3+1°15; November, 37°1+1°8; December, 22° 9 3° 5. Dividing the year into the ordinary season we have for Winter 28° 0; Spring, 41°4; Summer, 68°6; Autumn, 49°9. The mean daily range for the year was 16.7, the greatest monthly average occurring in September (20.7) and the least in Ianuary (12°1.) The greatest daily range (36°9) occurred on the 12th of May and the least (3°2) on the 30th of December. The warmest month relatively was January, estimated by its excess above (8°5) the normal. The warmest absolutely was August (71°0°; December was the coldest relatively, the mean being (3°5) below the normal; the coldest absolutely was February (21°8).

The climatic difference was 40"2; the warmest day was the 26th July, mean temperature 77°5 and the coldest the 3rd February, -3°0, but the warmest day relatively was the 22nd January, being 28 2 above the normal and the coldest the 3rd February, 26.5 below the normal; the average temperature of the warmest and coldest days from former years was 78°3 and 2°2 below zero. The highest temperature of the year (92°1) occurred on the 22nd July, and the lowest (12°1 below zero) on the 2nd February. The annual range from these extremes was 104° 2, being 3° 9 more than 1905, and 0° 9 more than the average annual range. There were thirty-four instances in which the temperature at the hour of observation was 20° o above the normal and 44 when a defect of an equal amount occurred. The most striking deviations from the daily normal curve of temperature have

been as follows :-

IN EXCESS.

January	3.	12.3	May	17.	
44	4.	.11.2		18	15.4
4.6	I 4	11.5	**	24.	13.1
**	15.	19.5	August	26	13.4
4 -	16.	13.1	Septembe	er 8	12.0
**	20	1917	1 44	9	15:2
**	21.	25.2	**	11.	.12.6
* *	22	28.2	4.6	12.	13.0
* *	23.	17.8	**	18.	16.0
44	30.	16.4	"	IO.	13:2
February	20.	16.6	**	20	11.1
"	21.	16.6	**	21	16.8
	23	14 5	44	22	12.7
66	24.	19.8	October	4	12.7
4.6	25	.13.8	**	Š	16.6
April	18	13.2	66	16.	12.4
٠.,	IQ.	13.4	Decembe	r 30.	12:3
May	12	13.5	4.6	31	17.6
	16	13.8			•

IN DEFECT.

February	I12° I	March	22
"	2		
**	524.6	October	3112,4
**	624.3	December	312.2
**	714.5	66	729.8
1.4	14 12.0	"	8 2 0° I
4.4	15 14.6	**	11
+4	27	4.6	2317.5
+ 4	28	1.4	21

BAROMETRIC PRESSURE.

The mean height of the barometer was 20,658 inches, being 0°038 inches above the average. The month which showed the greatest deviation from the normal was February 0°174 in excess. July showing the least 0°000. Average deviation without reference to sign was small, being only 0°045. The highest reading was 30°505 at 8 a.m. of March 24th; and the lowest 28°752 at 2 p.m. January 4th, giving a range of pressure of 1°753 inches.

The number of days of large abnormal variations in which the average pressure differed by two-tenths and upwards from the normal was 141, the greatest number (19) occurring in January, March and October and the least (3) in

August.

HUMIDITY.

The mean humidity of the year was 77, being equal to the average. The greatest monthly humidity of the year was 86 in December, and the least 67 in May. There were 14 cases of complete saturation at the hour of observation: 2 in January, 1 in March, 1 in June, 2 in October and 8 in December. The least humidity of the year at the hour of observation was 21 at 2 p m, on the 25th April.

CLOUDS

The extent of the sky clouded was on the average of the year six-tenths of the whole. September was the clearest month and December the most cloudy. During the year there were 54 days completely clouded, being 6 below the average (1872-1905) the greatest number (15) occuring in December; none being registered in the month of July and August.

WIND.

The resultant direction of the wind was N. 25° W., showing 60° more northing than 1005, and 36° more northing than in the seventeen years to 1800. The mean velocity of the wind without reference to direction was 1078 miles. The most windy month was December, with an average of 1531 miles per hour, and the least windy was July, with an average of 582 miles. The windiest day was November 22nd, average velocity 33°21 miles per hour, and the day of least velocity February 13th, average velocity 1'71 miles per hour. The highest velocity in one hour was 490 miles, 3 to 4 p.m. of the 6th December.

RAIN AND SNOW.

The total depth of rain that lell during the year was 27'206 inches, being 0'136 inches more than the average, and 1'381 inches more than the rainfall of 1905. The depth of snow 37'7 inches, was 28'0 inches less than the average, and 16'6 inches less than the snowfall of 1905. October was the most rainy month as to quantity (4'206), and with reference to the number of rainy days, June was the most rainy month; only 0'440 inches fell in February.

The day of greatest rainfall was the 19th October, when 2 161 inches fell. There were only 3 other days during the year on which over 1 inch fell.

The heaviest fall of snow was 70 inches on the 19th of March. Rain fell on 100 days, being 5 more than the average number, and 12 more than in 1905; snow fell on 44 days, being 20 less than the average and 5 less than in 1905.

There were 178 days on which no rain nor snow fell in 1906; there were 190 in 1905. The rain occupied 439 hours and the snow 249 hours in its fall, giving a total of 688 hours or 28 days and 16 hours when rain or snow was actually falling.

THUNDERSTORMS.

Of the 37 thunderstorms occurring during the year, the first was on the 20th of April, and the last one on October 8th, 1 occurred in April, 7 in May, 10 in June, 8 in July, 7 in August, 3 in September and 1 in October. The most severe storms were on May 16th, 18th, 26th, June 8th, 20th, July 10th, 20th, August 11th and September 2nd. Lightning along on May 12th, 31st, June 0th, 15th, 28th, July 27th, August 20th, September 8th, 21st. Hail fell on May 16th and 18th.

AURORA.

Auroral displays were very few. Of the 2 observed 1 of the 2nd class occurred in June, 1 of the 4th class in December. There were 203 nights favourable for observation.

SUNSHINE.

The total duration of bright sunshine during the year was 2016'4 hours; number of hours the sun was above the horizon 4464'1, ratio of registered to possible, 0'45.

GENERAL METEOROLOGICAL

MAGNETICAL OBSERVATORY,

Latitude 43° 40° N. Longitude 5h, 17m. 34°65s. W. Elevation

	JAN.	FEB.	MAR.	APRIL.	MAY.	JUNE.	JULY.
Average temperature Difference from average (66 years). Thermic Auomaly (Lat. 43 - 10)	$ \begin{array}{r} 30.95 \\ + 8.54 \\ - 1.85 \end{array} $	$ \begin{array}{r} 21^{2}78 \\ = 0.43 \\ -12.92 \end{array} $	$-rac{26^{\circ}76}{2^{\circ}29}$ $-13^{\circ}34$	$^{44\overset{\circ}{.}14}_{-6.06}$	53°20 + 0°67 4°90	65°11 + 2°57 + 0°51	69° 57 + 1°74 + 0°87
Highest temperature. Lowest temperature. Monthly and annual ranges. Average maximum temperature. Average minimum temperature. Average daily range. Greatest daily range.	56 5 5 2 51 3 37 02 24 87 12 15 24 3	53°3 -12°1 65°4 31°01 13°62 17°39 31°0	1910 - 018 4918 33117 20178 12139 2313	72:0 26:0 46:0 53:65 35:72 17:93 33:6	$\begin{array}{c} 86.0 \\ 30.5 \\ 55.5 \\ 64.15 \\ 44.33 \\ 19.82 \\ 36.9 \end{array}$	91.0 42.2 48.8 75.14 56.09 19.05 30.0	92·1 50·8 41·3 79·90 60·29 19·61 26·8
Average height of barometer 32 Fah. Difference from average (65 years). Highest barometer. Lowest barometer. Monthly and annual ranges.	29:6405 :0058 30:421 28:752 1:669	29°8090 + 1735 30°423 29°269 - 1°154					
Average of cloudiness Difference from average	0:70 -:04	0°58 — 10	+ · 03	0·49 :09	0 60 + 03	0:58 +:06	0.49
Average humidity of the air Difference from average	- 82 - 1	79 — 2	$+ {79 \atop 1}$	- ⁶⁹	- ⁶⁷ 3	$+ \begin{array}{c} 76 \\ + 3 \end{array}$	75 + 3
Resultant direction of the wind. Resultant velocity of wind Average velocity (miles per hour) Bifference from average. Highest velocity in month and year.	N 66 W 4:28 12:12 to 41 41:0	N 72 W 6 19 11 30 1 70 32 0	N 34 W 3:74 11:62 - 0:97 34:0	$\begin{array}{c} N \ 20 \ W \\ 3 \ 35 \\ 10 \ 03 \\ -1 \ 21 \\ 33 \ 0 \end{array}$	N 27 W 2:89 9:01 - 0:63 34:0	N 19 E 0.58 7.21 - 1.19 28.0	N 23 F 1:67 5:82 - 2:03 27:0
Total amount of rain in inches	$+\frac{1.320}{0.172}$		1:315 0:164 3				
Total amount of snow in inches Difference from average (66 years) Number of days of snow.	-13:04 8	3°6 -13°31 8	$+rac{12^{+3}}{0.78}$	$-rac{1.1}{1.38}$	- 0°11	* *	*
Number of fair days Number of days completely clouded	10 7	12 4	12 11	18	15 2	11	17 0
Number of auroras observed	0 15	0 11	16	0 21	0 15	1 15	0 10
Number of thunder storms Number of fogs.	0 4	0 2	0 2	1 0	7 0	10	8
Number of hours of bright sunshine . Number of hours of possible sunshine	88°0 299°9	138-7 294:0	116°2 369°7	20512 10218	223°5 456°8	210°5 461°9	260°3 468°1

REGISTER FOR THE YEAR 1906.

TORONTO, ONTARIO.

above Lake Ontario 108 feet. Elevation above the Sea, 350 feet.

Aug.	SEPT.	Oct.	Nov.	DEC.	1906.	1905.	1904.	1903.	1902.	1901.	1900.
$71^{\circ}01 + 4^{\circ}65 + 2^{\circ}51$	$\begin{array}{r} 64^{\circ}24 \\ + 5.36 \\ + 2.74 \end{array}$	$+ 1.46 \\ + 1.46 \\ - 5.53$	$ \begin{array}{r} 37^{1}13 \\ + 0.81 \\ - 6.07 \end{array} $	22:93 - 3:48 - 13:07	$^{+6.26}_{+1.87}$ $^{-4.76}$	$ \begin{array}{r} 44^{\circ}.53 \\ + 0.14 \\ - 6.49 \end{array} $	42·20 - 2·19 - 8·82	$^{45^{\circ}58}_{+\ 1^{\circ}19}_{-\ 5^{\circ}41}$	$+\frac{15.57}{1.18}$ $-\frac{5.15}{5.15}$	$\begin{array}{c} 45.55 \\ + 1.16 \\ - 5.47 \end{array}$	$^{46:89}_{+\ 2:50}_{-\ 4:13}$
89°0 52°0 37°0 81°07 62°58 18°49 27°0	90°4 41°7 48°7 75°19 54°51 20°68 33°9	7310 2614 4616 56194 41125 15169 2816	58 6 21 6 37 0 43 57 31 15 12 42 22 6	29:0 - 8:1 57:1 30:84 15:70 15:14 31:1	92°1 -12°1 104°2 -16°73 -36°9	92°1 - 8°2 100°3 - 17°01 35°6	93:0 -15:1 108:1 17:29 36:0	91:5 9:7 101:2 + 16:68 34:5	91.0 - 3.3 - 94.3 - 16.81 - 33.2	97°1 10°9 108°0 	98 0 - 916 10716 - 16170 - 3716
$\begin{array}{r} -29^{\circ}6176 \\ + 0011 \\ 29^{\circ}940 \\ 29^{\circ}351 \\ 0^{\circ}589 \end{array}$	29 6883 + 0223 30 009 29 234 0 775	2916118 10085 301193 281865 11328	29:7193 + :0939 30:250 29:190 T:060	29:7366 -: 0903 30:289 29:198 -1:091	$\begin{array}{c} -29.6577 \\ + .0381 \\ -30.505 \\ -28.752 \\ -1.753 \end{array}$	29 6273 + 10077 30 493 28 540 - 1 653	29:6380 + :0184 - 30:149 - 28:752 - 1:697	29°6203 + '0007 - 30°309 - 28°742 - 1°567	29 5940 10256 30 394 25 712 1 682	2915988 10208 301328 301328 281868 11460	$29^{\circ}6213$ $+ 0017$ $30^{\circ}224$ $28^{\circ}802$ $1^{\circ}422$
0:45	- 0·29 - 21	 0:59 :03	0:70	0:73 0:3	0.57 01	0°58 = 03	 01 01	0:61 :00	$+\frac{0.62}{01}$	0:61	0:57 - 04
+ ⁷⁵	75 - 3	+ 81 2	79 - 1	+ 86	77	+ ⁷⁸	79 + 2	- - 76 - 1	77	- ⁷⁶	76 - 1
$\begin{array}{c} & & & \\ & \text{N} & 2\overset{\circ}{3} & \text{E} \\ & 1^{\circ}13 \\ & 9^{\circ}23 \\ & + 1^{\circ}42 \\ & 31^{\circ}0 \end{array}$	$\begin{array}{c} -1 & 1 & 1 & 1 & 1 & 1 & 1 & 1 & 1 & 1 $	1°87 13°55	X 23 W 4 59 14 14 + 3 11 43 0	$egin{array}{c} { m N} & 8 \ { m E} \\ { m 6} \ 11 \\ 15 \ 31 \\ + \ 2 \ 12 \\ 49 \ 0 \\ \end{array}$	$egin{array}{c} ext{N 25 W} \\ ext{2.64} \\ ext{10.78} \\ ext{+ 0.37} \\ ext{49.0} \end{array}$	S 87 W 2:73 9:72 - 0:64 54:0	N 67 W 2:09 10:17 - 0:19 50:0	$\begin{array}{c} W \\ 2.45 \\ 10.83 \\ + 0.47 \\ 40.0 \end{array}$	$rac{ ext{N 60 W}}{2^{\circ}53} \\ ext{10°98} \\ ext{+ 0°62} \\ ext{44°0}$	$\begin{array}{c} - \\ X 55 W \\ 2.99 \\ 10.26 \\ - 0.10 \\ 15.0 \end{array}$	S 88 W 3 09 10 97 + 0 61 41 0
$-\frac{1.825}{1.007}$	+ 0:478 7	$+\begin{array}{c} 4.206 \\ 1.784 \\ 13 \end{array}$		1:540 0:017 5	27°206 + 0°136 109	25 825 — 1 245 — 97	$ \begin{array}{r} 30.040 \\ + 2.970 \\ 100 \end{array} $	25 631 1 439 100			22:130 = 4:940 99
* *	+	$+\frac{2.8}{2.17}$	- 0.8 - 3.83 2	12.8 - 0.22 9	37:7 -28:94 66:64	54°3 -12°34 49	56°5 10°14 -53	50°0 -16°64 52	- 1912 - 17144 - 37	+ 4:06 54	$+\begin{array}{r} 74.6 \\ 7.96 \\ 42 \end{array}$
16 0	23 1	16 5	15 4	13 15	178 54	190 59	175 61	171 61	181 59	183 58	187 51
0 9	0 6	0 23	0 16	1 15	2 13	6 196	177	5 184	2 185	2 201	221 221
7	3 0	1 2	0 2	0 2	37 19	30 23	37 26	26 22	34 31	29 29	34 29
251 · 4 433 · 3	243·8 364·4	128°8 342°5	81 :3 291 :5	68:7 279:2	2016.4 4464.1	2064 · 2 4464 · 1	1964:9 4475:2	203919 4464-1	1958:9 4464:1	1981 6 4464 1	2305°0 4464°1

TEMPERATURE.

	1906. Average of 66 years.	Extremes.		
Average temperature of the year	46.26	11:39	47:15 in 1898	10°77 in 1875
Warmest month. Average temperature of the warmest month.	August 71 01	July 67-84	July, 1868 75.80	Aug. 1860 61-46
Average temperature of the coldest month.	February 21:78	February 22°21	Feb. 1875 10/16	Feb. 1848 26-62
Difference between the temperature of the warmest and coldest months	49:23	15:63		
from their respective average of 66 years, signs of deviations being disregarded Month of greatest deviation without regard	2 96	2:76	3.26	
to sign. Corresponding magnitude of deviation.	January 8°51	January 3.91	Feb. 1875 12105	
Warmest day. Average temperature of the warmest day	26 Aug. 77 52	78:29	July 11, 1868 84:50	July 31, 1844 72, 75
Coldest day	2 Feb.	1	Feb. 6, 1855 Jan. 22, 1857	Dec. 22, 42
Average temperature of the coldest day		=2.50	-11 38 Aug. 21, 1854	9°57 Aug. 19, 184
Highest temperature	92 1	91 30 12 00	99°2 Jan. 10, 1859 —26°5	82·4 Jan. 2, 1842
Lowest temperature	$\frac{-12}{101} \cdot \frac{1}{2}$	103:30		87.0

BAROMETER.

	1896.	Average of 65 years.		REMES.
Average pressure of the year. Month of the highest average pressure. Highest monthly average pressure. Month of the lowest average pressure. Lowest monthly average pressure. Date of the highest pressure of the year. Highest pressure. Date of the lowest pressure of the year. Lowest pressure. Range for the year.	in. 29:6577 February 29:8465 May 29:5467 21 March 30:505 4 Jan. 28:752 1:758	in. 29°6196 September 29°6660 June 29°5721 30°363 28°709 1°654	in. (29°6679 1 in 1849 Feb. 1906 29°8105 March, 1859 29°4425 Jan. 8, 1866 30°940 Jan. 2, 1870 28°106 (2°24 1 in 1893	in. 20°5596 in 1864 Sept., 1885 29°6479 Nov. 1849 29°588 Mar. 17.1878 30°139 June, 21894 29°635 1°303 in 1845

RELATIVE HUMIDITY.

	1906.	Average of 65 years.	Extremes.		
Average humidity of the year. Month of greatest humidity. Greatest average monthly humidity. Month of least humidity. Least average monthly humidity.	77 Dec. 86 May 67	January Sa May 70	82 in 1851 Dec. 1878 91 Feb. 1843	73 in 1858-71 Dec., 4858 81 April, 1849 76	

EXTENT OF SKY CLOUDED.

	1906.	Average of 53 years.	Extremes,	
Average cloudiness of the year	0.73	0'61 December 0'76	0 66 in 69 76	0°56 in 1899 0°73
Least cloudy month Least monthly average of cloudiness	Sept. 0°29	July 0:49	0.58	0.51

WIND.

	1\$9.#5.	Average of 17 years.	Extr	EMES.
Resultant direction. Resultant velocity in miles Average velocity without regard to direction Month of greatest average velocity. Greatest monthly average velocity. Least monthly average velocity. Least monthly average velocity. Day of greatest average velocity. Day of greatest average velocity. Day of least average velocity. Least daily average velocity Least daily average velocity Hour of greatest absolute velocity Greatest velocity	N. 25 W. 2 61 10 78 December 15 31 July 5 82 22nd Nov. 33 21 13th Feb. 1 71 6 10 4 p.m. 49 0	13:19 July 7:67 28:98	17 01 July, 18 8, 5 93 Nov, 17, 1870 41 67 Dec 1, 1895 9 to to cm.	Dec. 1875 10 42 July, 1881 8 43 Feb. 10, 1885 22 79 Jan. 17, 1885

Note.—During the year 1906 the wind has been partly obtained from the Records of the anemograph at the Eastern Gap and no comparison has been made with the results of former years.

RAIN.

	1906.	Average of 66 years.	Extremes.		
Total depth of rain in inches. Number of days on which rain fell. Month in which the greatest depth of rain fell Greatest depth of rain in one month. Month in which the days of rain were most frequent.	27:206 109 Oct. 1:206 June	27:070 112 September 3 192 October	43°555 in '43 145 in 1890 Sept., 1813 9°760 May, 4890	17:574 in '74 80 in 4811 June, 1887 2:655 May, 1841	
Greatest number of rainy days in one month Day on which the greatest amount of rain fell Greatest amount of rain in one day	17 19th Oct. 21160	13	`23 July 27, 1897 . 3*881	11	

SNOW.

	1906.	Average of 63 years,	Extr	EMES.
Total depth of snow in inches	37:7 11	66.6 61	12219 in 1870 87 in 1859	31°8 in 1899 33 in 1848
Month in which the greatest depth of snow fell	December 12.8	January 17/3	March 1870 62°4	Feb., 1851 10 ⁻⁷
frequent	March	January	Dec., 1872	Feb., 1848
Greatest number of days of snow in one month	12	14	21	8
fell Greatest fall of snow in one day.	19th March 7:0	8.9	Mar. 28, 1876 16°2	Jan. 4-6, 1888 3.0

SUNSHINE,

	1906	Average 1882 to 1905
Total duration of bright sunshine in hour. Ratio to possible amount Month of greatest relative amount Ratio to possible amount. Month of least relative amount. Ratio to possible amount. Xumber of days completely clouded. Day of greatest relative amount Ratio to possible amount Ratio to possible amount Ratio to possible amount	2016 4 0°45 Septembe 0°67 Decembe 0°25 54 1th Dec. 0°93	0:65 r December 0:22 61

DIFFERENCE OF CERTAIN METEOROLOGICAL ELEMENTS FOR 1906 FROM THE NORMAL VALUES FOR EACH QUARTER AND YEAR.

	Bar.	Тет.	Rain.	Days Rain.	Snow.	Days Snow.	Clouded Sky.
Winter Spring. Summer.	in. + 10558 + 10388 + 1081 + 10359	+ 4:31 + 0:10 +2:98 +2:51	in0.176 -1.297 +0.386	in. +2.11 - 6.70 +3.30 - 5.50	in 33:38 - 0:71	16*67 0*19	p. c. '03 '01 '00
Autumn Year.	:0359	$^{+2.51}_{-2.56}$	$^{+1.355}_{+0.268}$	-3.25	-35.97	$-8.79 \\ -25.65$	= :09 = :03

Note.—The quarters and year in this table are from the preceding December to 30th November.

PERIODICAL OR OCCASIONAL EVENTS, 1906.

- January..... 8. Bay frozen. 13th, Breaking up. 15th, Clear. 30th, Sap tunning freely from maples.
- February 2. Coldest day of year, -3° , lowest temperature, -12° 1. 3rd, Bay frozen up.
- March......to. Steamer Macassa arrived, broke up the ice.

- June....... 3. Cuckoo. 6th, White Clover in bloom. 10th, Red Clover and Wild Raspberry in bloom. 13th, Wild Rose and Thimbleberry in bloom.
- July....... 6. Highest water of year, 22 inches above zero. 15th, Hay cutting. 28th, Golden Rod in bloom.
- August..... 26. Warmest day of year, mean temperature 77.5.
- September....12. Leaves falling freely from hardwood trees, want of moisture.
- October 8. First frost. 12th, First ice. 8th, Last thunderstorm. 10th, Heaviest rainfall of year, 2.160 inches.
- December..... 1. Lowest water in Bay 1½ inches above zero. 13th, Last vessel to arrive, "Ballow," from Frenchman's Bay.